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ABSTRACT

This report on a funded project that established a chemistry research information service for researchers in the University of Houston's chemistry department provides detailed descriptions of the three objectives of the project, together with an explanation of how each objective was/is to be accomplished. These objectives were/are: (1) to document the establishment of an innovative research support service that effectively integrates access to computerized databases with a document delivery system for printed materials; (2) to collect and evaluate data on the value of electronic information products to researchers; and (3) to publicize the results of the project for the benefit of research chemists, libraries, and the publishing industry. This report is considered to fulfill the first objective, and an attitude survey sent to 174 researchers in the chemistry department at the end of the project is described as the means of meeting the second objective. A first step in accomplishing the third objective was the submission of this final report to the ERIC Clearinghouse on Information Resources for inclusion in the ERIC database; future dissemination activities are expected to take the form of the presentation of the findings in scholarly articles and talks. Nine tables and two figures are provided in the report, and complete survey results are presented in a five-part appendix. (CGD)

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The University of Houston Libraries' Chemistry Research Information Service: A Research Support Service Based On End-User Searching and Document Delivery

Final Report to the

Camille and Henry Dreyfus Foundation, Inc.

Submitted By

Charles W. Bailey Jr., Project Director

Chemistry Research Information Service Project

University Libraries

The University of Houston

November, 1988

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Executive Summary

With the generous support of the Camille and Henry Dreyfus Foundation, the University of Houston Libraries established a successful Chemistry Research Information Service, which provided Chemistry Department researchers with an innovative research support service that effectively integrated access to computerized databases with a document delivery system for printed materials.

Through this synergistic blend of services, the Chemistry Research Information Service Project demonstrated that a proper mix of access to electronic information stored in powerful computer retrieval systems, rapid and convenient delivery of printed materials, and effective user training and support services could significantly improve the chemistry research process.

In an attitude survey conducted at the end of the Project, a majority of the researchers who had searched the CAS ONLINE system felt that it enabled them to find information faster (95%), to identify more relevant information (65%), and to improve the quality of their research (77.5%). Likewise, a majority of the researchers who had participated in the document delivery service felt that this service was important (89.5%) and that it improved the quality of their research (78.9%).

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Introduction

In its October 1985 grant proposal, The University of Houston Libraries envisioned creating an innovative research support system for Chemistry Department faculty members, postdoctoral students, and graduate students that effectively integrated access to emerging electronic information resources (i.e., computerized databases) with delivery of traditional printed information resources.

The Libraries' Chemistry Research Information Service Project would change the way chemistry researchers sought and obtained information. By searching online databases, researchers would quickly pinpoint needed materials. Based on these online searches and other research efforts, chemistry researchers would easily get needed materials by requesting that the Project obtain and deliver them to the Chemistry Department for their use. To aid researchers in their information seeking efforts, the Project would provide them with both training and ongoing assistance.

The Chemistry Research Information Service Project would make the process of identifying and acquiring critical information more effective and efficient, thereby freeing the researcher to concentrate his or her efforts on utilizing that information to support research and teaching activities.

The Project would also evaluate the value of electronic information to chemistry researchers and disseminate information about its findings to the scholarly community.

This report describes the successful efforts of the University Libraries to establish and run the Chemistry Research Information Service as well as to evaluate the significance of electronic information for the chemistry researcher. The work done to date lays the foundation for disseminating information about the Project to the scholarly community.

The generous $20,000 grant by the Camille and Henry Dreyfus Foundation has made this groundbreaking Project possible. The University Libraries contributed an additional $30,129.53 to the Project.

Objective 1.

To design, test, and evaluate an integrated method of organizing services and delivering materials by university research libraries.

The Chemistry Research Information Service Project successfully accomplished this objective by planning and implementing a service that provided Chemistry Department faculty, postdoctoral students, and graduate students with a comprehensive research support service that included subsidized access to electronic information resources, an active training program, ongoing support by professional online searchers, and document delivery of needed print materials. As an additional service, the Chemistry Research Information Service introduced undergraduate students enrolled in the "Literature of Chemistry" course to electronic information resources.

Project Staff and Consultants

The Chemistry Research Information Service was initially directed by Laura Bowman, Chemistry Librarian. Ms. Bowman became seriously ill in late Spring of 1987 and was on extended sick leave for the rest of the Project. Sandy Maxfield, Coordinator of the

CIRES online searching service, assumed Ms. Bowman's duties as Project Coordinator and served in this capacity until she left the Libraries to assume a post at the Massachusetts Institute of Technology in May 1988. Charles Bailey, Assistant Director for Systems, assumed Project Director responsibilities and served in this capacity until the Project concluded at the end of August.

Two other staff members played important roles in the Project. Providing training and ongoing support to chemistry researchers, Dr. Leonard Levine served as Online Searcher/Trainer from March to August 1988. Lisa Brehm, Access Services Coordinator, managed the Project's document delivery service.

The Project was fortunate to have several Chemistry Department faculty members involved in it. Dr. Thomas Albright, Associate Professor, acted as the Project's general consultant. Dr. Paul Street, Assistant Professor, was the Project's primary liaison to the Chemistry Department. Dr. James Cox, Associate Professor, was the instructor of the "Literature of Chemistry" course.

Project Planning

Work began on the Chemistry Research Information Service Project in November 1986. Project objectives were refined, project participants identified, and Chemistry Department faculty consultants recruited.

The Project Director interviewed the faculty of the Chemistry Department to determine the ways in which the Department's research groups used chemical literature. These interviews were structured to determine (1) the reasons Chemistry researchers sought information; (2) the printed, electronic, and human resources they used to obtain needed information; (3) prior online database searching activities; (4) perceptions of online database searching; (5) methods of obtaining printed materials; and (6) time requirements for obtaining needed information.

Based on the information obtained in these interviews, Project staff designed services, selected appropriate electronic information resources, established operational procedures, and created documentation for researchers' use.

Reflecting its central importance to the discipline, Chemical Abstracts Service's CAS ONLINE system was chosen. The CAS ONLINE system is composed of five computer databases: (1) CA File, which contains over 7.5 million records that cover journals, patents, technical reports, books, conference proceedings, and dissertations from all areas of chemistry worldwide from 1967 to the present; (2) REGISTRY File, which is a chemical structure and dictionary database that contains over 8 million substance records; (3) CAOLD, which contains abbreviated records for chemistry documents prior to 1967; (4) LCA File, which is a training database for the CA File; and (5) LREGISTRY File, which is a training database for the REGISTRY File.

Additional databases selected for use in the Project were (1) the Cambridge Crystallographic Data File, which was made available for batch processing on a minicomputer; (2) the INSPEC, MEDLINE, and SCISEARCH databases on the Dialog system; and (3) the University of Houston Libraries' Online Catalog. The Cambridge Crystallographic Data File contains over 50,000 crystallographic data, structural, and bibliographic records. The INSPEC database is the largest English-language database in the fields of physics, electrotechnology, computers and control, and information technology, with over 3,049,755 records. The MEDLINE database is an important, comprehensive source of biomedical information, containing over 5,964,567 records. The SCISEARCH database, composed of over 8,437,147 records, provides broad coverage of

scientific and technical literature.

An IBM XT microcomputer, equipped with telecommunications software and a modem so that remote databases could be dial-accessed, was installed in a designated online searching room in the Chemistry Department. Using the attached printer, researchers could print their searches. Search results could also be downloaded to floppy disk.

The Chemistry Research Information Service began operation on March 23, 1987. Project participants were given a comprehensive information packet. This packet contained the following items: (1) a description of project procedures; (2) online system passwords; (3) Chemistry Research Online, a detailed, self-paced training manual; (4) CAS ONLINE and Dialog command summary sheets; (4) a guide to the Libraries' Online Catalog; (5) document delivery request forms; and (6) a book loan release form.

User Support

The Project provided faculty and graduate students with a number of opportunities to attend training sessions in the use of electronic information resources. Twenty-three CAS ONLINE training sessions were conducted by Project staff. Each of these training sessions was one to two hours in length, and each was tailored to meet the needs of the attending researchers. Two all-day training sessions sponsored by the Project -- "CA File Basics" and "Registry File I" -- were conducted by trainers from Chemical Abstracts Service.

In the fall semester of 1987, undergraduate students in the "Literature of Chemistry" class were given instruction in online searching by a Project staff member. Each student first researched a topic manually in Chemical Abstracts and in Science Citation Index. Next, the students met in small groups, and the Project staff member searched the same topics in CAS ONLINE and SCISEARCH.

A computer-based instruction package, STN Mentor, was available on the IBM XT used by project participants. Researchers could use this software package to learn about searching CAS ONLINE, to simulate a computer search, or to refresh their searching skills.

Professional searchers from the University Libraries were available during the Project to provide personal assistance to researchers. Researchers could make appointments to see Project staff, ask questions by phone, or drop in during regular office hours. Initially, user support was provided by the Project Directors, the Chemistry Librarian and, subsequently, the Coordinator of the CIRES computer searching service. From March 14, 1988, to the end of the Project, a half-time Online Searcher/Trainer, who held a Ph.D. in Organic Chemistry and who had over 10 years of database searching experience, was hired to provide more intensive user support. As the Project evolved, Project staff increasingly felt that training and individualized user support were critical elements in ensuring the success of researchers' online searching efforts. The Online Searcher/Trainer maintained office hours in the Chemistry Department and in the University Libraries.

Online Searching

Chemistry Department researchers were very active searchers of electronic information resources. The Project subsidized all online searching costs. From March 1987 through December 1987, researchers could search CAS ONLINE after 4:00 PM on weekdays and on weekends. Searching costs were lowest at these times. Other electronic information resources could be searched at any time.

From January 1988 through June 1988, researchers were permitted to search CAS ONLINE at any time.

Researchers were asked to fill out log sheets to enable the Project to identify individuals conducting searches; however, fewer log sheets were filled out than the number of searches done. From billing data, the Project could determine the number of search sessions and the number of computer databases accessed. A search session begins when the searcher logs on to the computer and ends when that individual logs off the computer. During a search session, the researcher may conduct a number of searches on different topics. The number of searches performed by researchers during the Project could not be determined from billing data; however, it did provide another measure of searching activity -- the number of computer files accessed.

Table 1 summarizes searching activity during 1987. These figures include a small number of searches done by Project staff for instructional purposes.

Table 1.

Online Searching Activity 1987

	Mar.	Apr.	May	June	July	Aug.	Sep.	Oct.	Nov.	Dec.	Total
Log Sheets	4	23	20	15	34	13	11	26	20	13	179
Search Sessions	5	36	39	28	86	44	23	46	38	37	382
Files Used	17	90	80	57	202	96	49	115	93	87	886

Table 2 summarizes searching activity during 1988. These figures include a small number of searches done by Project staff for instructional purposes.

Table 2.

Online Searching Activity 1988

	Jan.	Feb.	Mar.	Apr.	May	Jun.	Total
Log Sheets	33	35	26	46	63	59	262
Search Sessions	60	66	69	90	109	121	515
Files Used	196	144	191	181	223	238	1,173

The data show a significant increase in searching activity during 1988. The majority of the 1988 search sessions were done during daytime hours. Availability of daytime searching was clearly attractive to researchers.

Figure 1 graphs searching activity for 1987-1988.

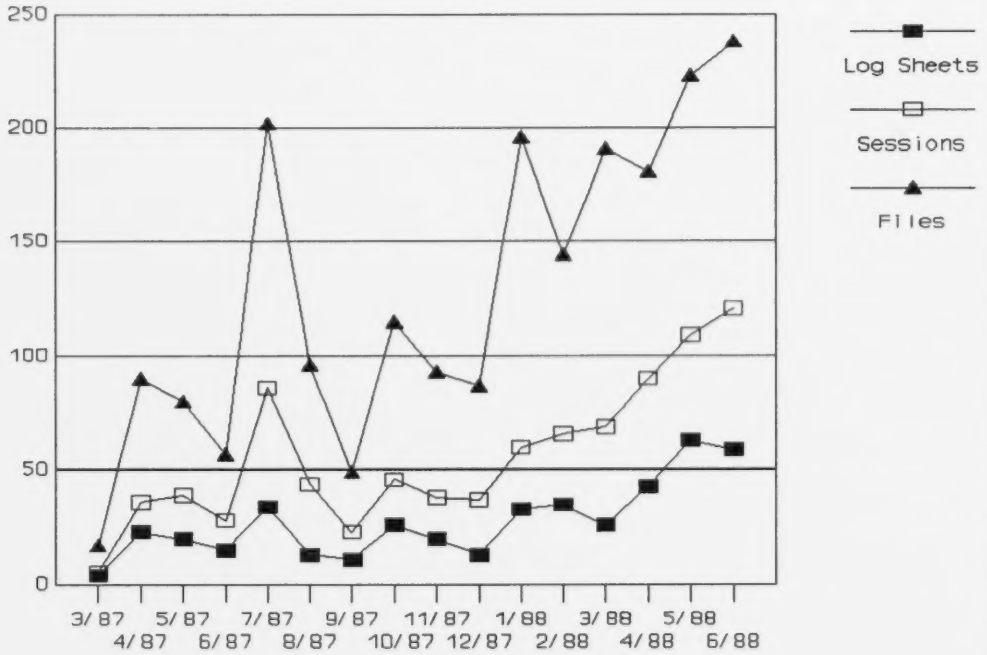

Figure 1. Online Searches 1987 - 1988

Although the Project identified a variety of electronic information resources for researchers' use, the overwhelming majority of searches were done on CAS ONLINE. A small number of searches were done on COMPENDEX PLUS, INSPEC, MEDLINE, and SCISEARCH. This reflects the importance of the CAS ONLINE system to the chemistry researcher and the emphasis that was placed by Project staff on this system. The time investment required to master additional online systems, each with its own unique characteristics, was also a likely factor in this use pattern.

Document Delivery

A document delivery service was provided to chemistry researchers. A student worker would pick up request forms and drop off items in the Chemistry Department on a daily basis. The Project established an electronic mail account, and requests were also submitted using electronic mail. Needed research materials would be obtained from the collections of the University Libraries or from the collections of other libraries via interlibrary loan mechanisms. If the needed item was in the University Libraries' collections, it was typically delivered the day after the request was received.

Initially, researchers were charged $.10 per page for photocopies of articles. From January 1988 to the end of June 1988, this charge was dropped.

Table 3 summarizes document delivery activity during 1987.

Table 3.

Document Delivery Activity 1987

	Mar.	Apr.	May	June	July	Aug.	Sep.	Oct.	Nov.	Dec.	Total
Items Requested	0	0	0	0	193	1	0	0	0	3	197

Table 4 summarizes document delivery activity during 1988.

Table 4.

Document Delivery Activity 1988

	Jan.	Feb.	Mar.	Apr.	May	Jun.	Total
Items Requested	75	311	169	183	202	403	1,343

As the data show, document delivery requests increased dramatically when costs were completely subsidized by the Project. Demand for document delivery appears to be very cost sensitive.

Figure 2 graphs document delivery requests for 1987-1988.

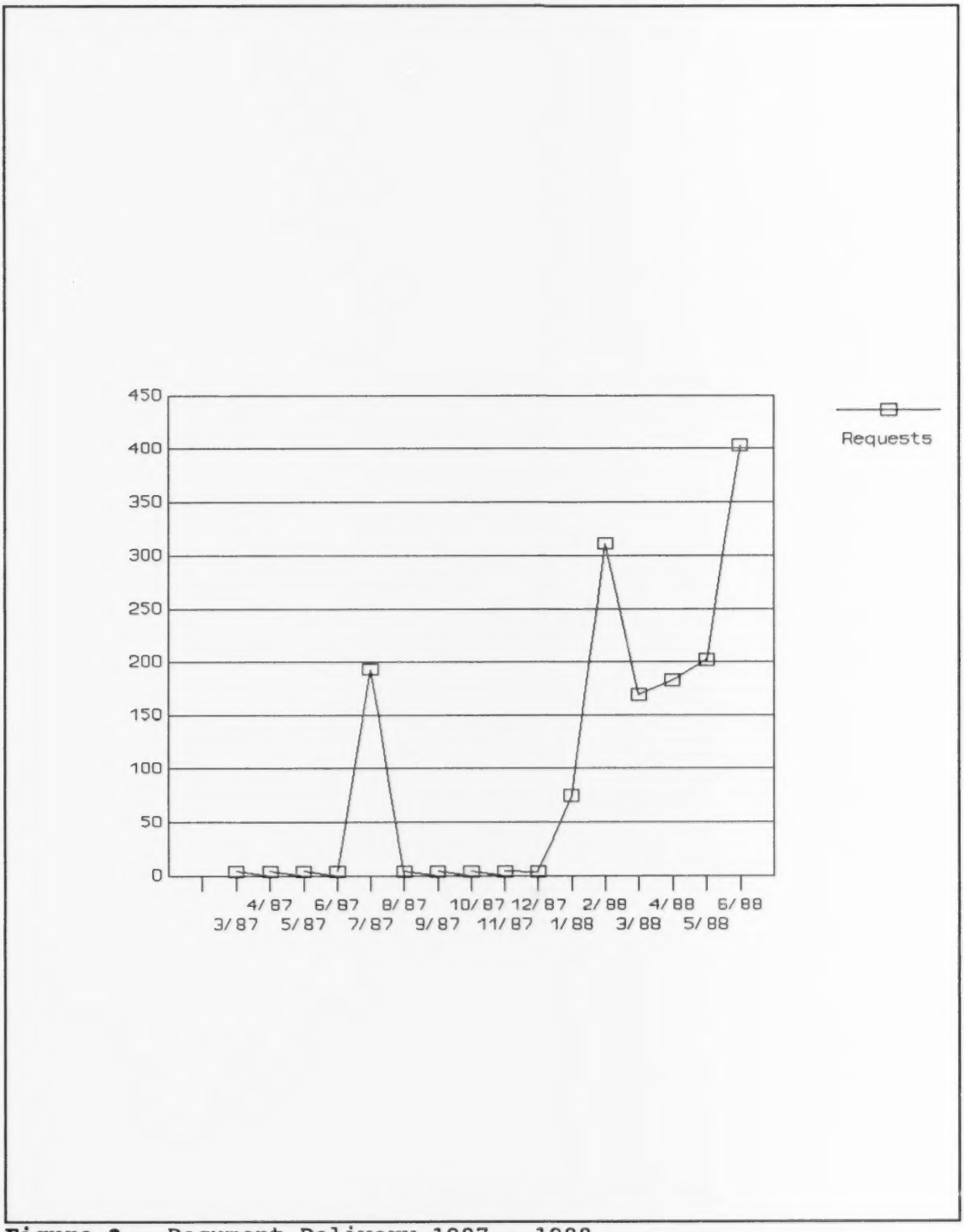

Figure 2. Document Delivery 1987 - 1988

Objective 2.

To collect and evaluate data on the value of electronic information products to researchers.

Survey of Chemistry Department Researchers

In July 1988, a survey was designed and mailed to faculty, postdoctoral students, and graduate students in the Chemistry Department. The survey was constructed to assess researchers' attitudes towards electronic information resources and document delivery services. The target population included approximately 174 individuals. Seventy-six surveys were returned to the Project. Of these, 66 surveys were usable, representing 37.9% of the target population.

The key findings of the survey are presented in the subsequent two sections. The full results of the survey are presented in Appendix A.

Online Searching Attitudes

Sixty-one percent of survey respondents had personally searched CAS ONLINE. These respondents had the following attitudes towards use of CAS ONLINE.

* 95% felt that they could find citations faster using CAS ONLINE than when they used the printed Chemical Abstracts indexes.

* 47.5% felt that they could find a larger number of citations on their research topic using CAS ONLINE than when they used the printed Chemical Abstracts indexes.

* 65% felt they found more relevant citations using CAS ONLINE than when they used the printed Chemical Abstracts indexes.

* 97.5% felt that learning how to search CAS ONLINE was a useful professional activity.

* 77.5% felt that searching CAS ONLINE improved the quality of their research.

* 70% were more likely to search CAS ONLINE themselves as a result of having done searching under the auspices of the Project.

* 70% felt that CAS ONLINE was no harder to use than the printed Chemical Abstracts indexes.

* 75% felt that having a online searching specialist available in the Chemistry Department to assist them with doing online searches was important.

Thirty-nine percent of the respondents did not search CAS ONLINE. The most prevalent reason, indicated by 34.6% of these respondents, was that someone else in the Chemistry Department was doing the searching for them.

Document Delivery Attitudes

Fifty-eight percent of the respondents had personally used the document delivery service. These respondents had the following attitudes about the service.

* 89.5% felt that it was important for the Libraries to offer a document delivery service.

* 42.1% were not willing to pay a $.10 per page fee for document delivery of photocopies of articles.

* 78.9% felt that the document delivery service improved the quality of their research.

Forty-two percent of the respondents did not use the document delivery service. The most prevalent reason, indicated by 64.3% of these respondents, was that they preferred to get the documents themselves.

Objective 3.

To publicize the results of the project, including costs of project service as compared with traditional services, for the benefit of research chemists, libraries, and the publishing industry.

This report will be submitted to the ERIC Clearinghouse for Information Resources. If accepted, it will be microfilmed, and it will be indexed in the printed Resources in Education index as well as in the online and CD-ROM versions of the ERIC database. A large number of academic libraries have the Resources in Education index in their collections, and the ERIC database is heavily used.

The staff of the University Libraries will further analyze the collected data and present their findings in scholarly articles and talks.

Conclusion

With the support of the Camille and Henry Dreyfus Foundation, the University of Houston Libraries established a successful research support system for Chemistry Department researchers that integrated access to electronic information resources with the delivery of traditional printed information materials.

The Chemistry Research Information Service provided chemistry researchers with an appropriate infrastructure to support their research efforts, which included subsidized access to electronic information resources, an active training program, ongoing support by professional online searchers, and document delivery of print materials. It demonstrated that such a research support system could be very valuable to chemistry researchers, permitting them to identify and obtain needed information more effectively and efficiently.

Appendix A.

Survey Results

I. General Information

In July 1988, the Project's survey was mailed to 174 faculty, postdoctoral fellows, and graduate students in the Chemistry Department of the University of Houston. The survey was designed to assess the attitudes of users of the CAS ONLINE system and the document delivery service towards this electronic information resource and this print information delivery service. Of the 76 surveys returned to Project staff, 66 were usable, which represented 37.9 % of the target population.

The survey respondents are classified by their academic status in Table 5.

Table 5.

Survey Respondents By Academic Status

Status	No.	% of Respondents
Faculty	13	19.7%
Postdoctoral Fellow	19	28.8%
Graduate Student	34	51.5%
Total	66	100.0%

Answers to survey questions were cross-tabulated by academic status. For each question, response frequencies and percentages were determined for each academic status group as well as for all respondents. Percentages were rounded, and totals calculated from these percentages are subject to $\pm$ .1% error.

II. Evaluation of Online Searching

Forty researchers personally searched CAS ONLINE. Table 6 categorizes these users by their academic status. The questions which follow Table 6 were answered by these researchers.

Table 6.

Respondents Who Did Online Searching

Status	No. of Searchers	% of Searchers (N=40)	% of Group
All (N=66)	40	100%	60.6%
Faculty (N=13)	6	15%	46.2%
Postdoctoral (N=19)	11	27.5%	57.9%
Graduate (N=34)	23	57.5%	67.6%

I did online searching in order to (mark all that apply):

Get Information for a class assignment.

	All (N=40)	Faculty (N=6)	Post-doctoral (N=11)	Graduate (N=23)
Frequency	6	1	1	4
% of Group	15%	16.7%	9.1%	17.4%

Provide information to faculty member.

	All (N=40)	Faculty (N=6)	Post-doctoral (N=11)	Graduate (N=23)
Frequency	14	0	5	9
% of Group	35%	0%	45.5%	39.1%

Provide information to students/fellows.

	All (N=40)	Faculty (N=6)	Post-doctoral (N=11)	Graduate (N=23)
Frequency	10	2	3	5
% of Group	25%	33.3%	27.3%	21.7%

Support my own research activities.

	All (N=40)	Faculty (N=6)	Post-doctoral (N=11)	Graduate (N=23)
Frequency	38	6	11	21
% of Group	95%	100%	100%	91.3%

Assuming both methods were free, I would prefer to do my own online searching of Chemical Abstracts databases instead of having a librarian search for me.

	All (N=40)	Faculty (N=6)	Post-doctoral (N=11)	Graduate (N=23)
Strongly Agree				
Frequency	23	3	8	12
% of Group	57.5%	50%	72.7%	52.2%
Agree				
Frequency	11	2	2	7
% of Group	27.5%	33.3%	18.2%	30.4%
Undecided				
Frequency	4	0	1	3
% of Group	10%	0%	9.1%	13%
Disagree				
Frequency	2	1	0	1
% of Group	5%	16.7%	0%	4.3%
Strongly Disagree				
Frequency	0	0	0	0
% of Group	0%	0%	0%	0%

I could find citations for articles and other materials faster using online Chemical Abstracts databases than I could using the printed Chemical Abstracts indexes.

	All (N=40)	Faculty (N=6)	Post-doctoral (N=11)	Graduate (N=23)
Strongly Agree				
Frequency	23	4	4	15
% of Group	57.5%	66.7%	36.4%	65.2%
Agree				
Frequency	15	2	7	6
% of Group	37.5%	33.3%	63.6%	26.1%
Undecided				
Frequency	1	0	0	1
% of Group	2.5%	0%	0%	4.3%
Disagree				
Frequency	0	0%	0	0
% of Group	0%	0%	0%	0%
Strongly Disagree				
Frequency	1	0	0	1
% of Group	2.5%	0%	0%	4.3%

I could find a larger number of citations on my research topic using the printed Chemical Abstracts indexes than I could using the online Chemical Abstracts databases.

	All (N=40)	Faculty (N=6)	Post-doctoral (N=11)	Graduate (N=23)
Strongly Agree				
Frequency	5	0	0	5
% of Group	12.5%	0%	0%	21.7%
Agree				
Frequency	6	2	2	2
% of Group	15%	33.3%	18.2%	8.7%
Undecided				
Frequency	10	2	2	6
% of Group	25%	33.3%	18.2%	26.1%
Disagree				
Frequency	9	0	4	5
% of Group	22.5%	0%	36.4	21.7%
Strongly Disagree				
Frequency	10	2	3	5
% of Group	25%	33.3%	27.3%	21.7%

I could find more relevant citations on my research topic using Chemical Abstracts databases than I could using the printed Chemical Abstracts indexes.

	All (N=40)	Faculty (N=6)	Post-doctoral (N=11)	Graduate (N=23)
Strongly Agree				
Frequency	9	0	3	6
% of Group	22.5%	0%	27.3%	26.1%
Agree				
Frequency	17	1	4	12
% of Group	42.5%	16.7%	36.4%	52.2%
Undecided				
Frequency	10	4	4	2
% of Group	25%	66.7%	36.4%	8.7%
Disagree				
Frequency	3	1	0	2
% of Group	7.5%	16.7%	0%	8.7%
Strongly Disagree				
Frequency	1	0	0	1
% of Group	2.5%	0%	0%	4.3%

I found the Chemical Abstracts databases to be harder to use than the printed Chemical Abstracts indexes.

	All (N=40)	Faculty (N=6)	Post-doctoral (N=11)	Graduate (N=23)
Strongly Agree				
Frequency	1	0	0	1
% of Group	2.5%	0%	0%	4.3%
Agree				
Frequency	6	0	2	4
% of Group	15%	0%	18.2%	17.4%
Undecided				
Frequency	5	1	0	4
% of Group	12.5%	16.7%	0%	17.4%
Disagree				
Frequency	20	3	7	10
% of Group	50%	50%	63.6%	43.5%
Strongly Disagree				
Frequency	8	2	2	4
% of Group	20%	33.3%	18.2%	17.4%

It is important to have an online searching specialist available in the Chemistry Department to help me do online searching.

	All (N=40)	Faculty (N=6)	Post-doctoral (N=11)	Graduate (N=23)
Strongly Agree				
Frequency	10	1	2	7
% of Group	25%	16.7%	18.2%	30.4%
Agree				
Frequency	20	2	7	11
% of Group	50%	33.3%	63.6%	47.8%
Undecided				
Frequency	5	2	1	2
% of Group	12.5%	33.3%	9.1%	8.7%
Disagree				
Frequency	5	1	1	3
% of Group	12.5%	16.7%	9.1%	13%
Strongly Disagree				
Frequency	0	0	0	0
% of Group	0%	0%	0%	0%

Librarians can search Chemical Abstracts databases more effectively than I can.

	All (N=40)	Faculty (N=6)	Post-doctoral (N=11)	Graduate (N=23)
Strongly Agree				
Frequency	5	0	2	3
% of Group	12.5%	0%	18.2%	13%
Agree				
Frequency	16	2	1	13
% of Group	40%	33.3%	9.1%	56.5%
Undecided				
Frequency	15	2	7	6
% of Group	37.5%	33.3%	63.6%	26.1%
Disagree				
Frequency	3	1	1	1
% of Group	7.5%	16.7%	9.1%	4.3%
Strongly Disagree				
Frequency	1	1	0	0
% of Group	2.5%	16.7%	0%	0%

I have a good understanding of how to search Chemical Abstracts databases.

	All (N=40)	Faculty (N=6)	Post-doctoral (N=11)	Graduate (N=23)
Strongly Agree				
Frequency	2	0	0	2
% of Group	5%	0%	0%	8.7%
Agree				
Frequency	22	3	7	12
% of Group	55%	50%	63.6%	52.2%
Undecided				
Frequency	9	2	3	4
% of Group	22.5%	33.3%	27.3%	17.4%
Disagree				
Frequency	7	1	1	5
% of Group	17.5%	16.7%	9.1%	21.7%
Strongly Disagree				
Frequency	0	0	0	0
% of Group	0%	0%	0%	0%

I accidentally discover information of interest to me more often when I use the printed Chemical Abstracts indexes than when I do online searching.

	All (N=40)	Faculty (N=6)	Post-doctoral (N=11)	Graduate (N=23)
Strongly Agree				
Frequency	3	0	2	1
% of Group	7.5%	0%	18.2%	4.3%
Agree				
Frequency	14	1	4	9
% of Group	35%	16.7%	36.4%	39.1%
Undecided				
Frequency	12	3	2	7
% of Group	30%	50%	18.2%	30.4%
Disagree				
Frequency	8	2	2	4
% of Group	20%	33.3%	18.2%	17.4%
Strongly Disagree				
Frequency	3	0	1	2
% of Group	7.5%	0%	9.1%	8.7%

Learning how to search Chemical Abstracts databases is a useful professional activity.

	All (N=40)	Faculty (N=6)	Post-doctoral (N=11)	Graduate (N=23)
Strongly Agree				
Frequency	21	2	5	14
% of Group	52.5%	33.3%	45.5%	60.9%
Agree				
Frequency	18	4	6	8
% of Group	45%	66.7%	54.5%	34.8%
Undecided				
Frequency	1	0	0	1
% of Group	2.5%	0	0%	4.3%
Disagree				
Frequency	0	0	0	0
% of Group	0%	0%	0%	0%
Strongly Disagree				
Frequency	0	0	0	0
% of Group	0%	0%	0%	0%

It is not important to have an online searching specialist available in the Library to answer my questions and otherwise assist me with my online searching.

	All (N=40)	Faculty (N=6)	Post-doctoral (N=11)	Graduate (N=23)
Strongly Agree				
Frequency	1	0	0	1
% of Group	2.5%	0%	0%	4.3%
Agree				
Frequency	9	1	4	4
% of Group	22.5%	16.7%	36.4%	17.4%
Undecided				
Frequency	4	1	2	1
% of Group	10%	16.7%	18.2%	4.3%
Disagree				
Frequency	19	3	4	12
% of Group	47.5%	50%	36.4%	52.2%
Strongly Disagree				
Frequency	7	1	1	5
% of Group	17.5%	16.7%	9.1%	21.7%

Searching Chemical Abstracts databases has improved the quality of my research.

	All (N=40)	Faculty (N=6)	Post-doctoral (N=11)	Graduate (N=23)
Strongly Agree				
Frequency	7	1	2	4
% of Group	17.5%	16.7%	18.2%	17.4%
Agree				
Frequency	24	3	6	15
% of Group	60%	50%	54.5%	65.2%
Undecided				
Frequency	7	2	1	4
% of Group	17.5%	33.3	9.1%	17.4%
Disagree				
Frequency	2	0	2	0
% of Group	5%	0%	18.2%	0%
Strongly Disagree				
Frequency	0	0	0	0
% of Group	0%	0%	0%	0%

Compare your future chemistry literature searching activities with your activities before the Chemistry Research Information Service. Are you less likely, as likely, or more likely to search for citations using these techniques?

Search Chemical Abstracts databases myself.

Less Likely

	All (N=40)	Faculty (N=6)	Post-doctoral (N=11)	Graduate (N=23)
Frequency	3	0	2	1
% of Group	7.5%	0%	18.2%	4.3%

As Likely

	All (N=40)	Faculty (N=6)	Post-doctoral (N=11)	Graduate (N=23)
Frequency	9	3	2	4
% of Group	22.5%	50%	18.2%	17.4%

More Likely

	All (N=40)	Faculty (N=6)	Post-doctoral (N=11)	Graduate (N=23)
Frequency	28	3	7	18
% of Group	70%	50%	63.6%	78.3%

Have a Librarian search Chemical Abstracts for me.

Less Likely

	All (N=40)	Faculty (N=6)	Post-doctoral (N=11)	Graduate (N=23)
Frequency	17	2	6	9
% of Group	42.5%	33.3%	54.5%	39.1%

As Likely

	All (N=40)	Faculty (N=6)	Post-doctoral (N=11)	Graduate (N=23)
Frequency	17	2	4	11
% of Group	42.5%	33.3%	36.4%	47.8%

More Likely

	All (N=40)	Faculty (N=6)	Post-doctoral (N=11)	Graduate (N=23)
Frequency	6	2	1	3
% of Group	15%	33.3%	9.1%	13%

Use the printed Chemical Abstracts indexes.

Less Likely

	All (N=40)	Faculty (N=6)	Post-doctoral (N=11)	Graduate (N=23)
Frequency	20	4	5	11
% of Group	50%	66.7%	45.5%	47.8%

As Likely

	All (N=40)	Faculty (N=6)	Post-doctoral (N=11)	Graduate (N=23)
Frequency	15	2	5	8
% of Group	37.5%	33.3%	45.5%	34.8%

More Likely

	All (N=40)	Faculty (N=6)	Post-doctoral (N=11)	Graduate (N=23)
Frequency	5	0	1	4
% of Group	12.5%	0%	9.1%	17.4%

III. Reasons for Not Doing Online Searching

Twenty-six researchers did not personally search CAS ONLINE. Table 7 categorizes these users by their academic status. The question which follows Table 7 was answered by these researchers.

Table 7.

Respondents Who Did Not Do Online Searching

Status	No. of Non-Searchers	% of Non-Searchers (N=26)	% of Group
All (N=66)	26	100%	39.4%
Faculty (N=13)	7	26.9%	53.8%
Postdoctoral (N=19)	8	30.8%	42.1%
Graduate (N=34)	11	42.3%	32.4%

I did not do online searching because (mark the single most important reason):

Someone else in the Chemistry Department was searching for me.

	All (N=26)	Faculty (N=7)	Post-doctoral (N=8)	Graduate (N=11)
Frequency	9	5	2	2
% of Group	34.6%	71.4%	25%	18.2%

Someone else in Chemistry Department was using the printed indexes for me.

	All (N=26)	Faculty (N=7)	Post-doctoral (N=8)	Graduate (N=11)
Frequency	0	0	0	0
% of Group	0%	0%	0%	0%

I preferred to have my online searches done by librarians.

	All (N=26)	Faculty (N=7)	Post-doctoral (N=8)	Graduate (N=11)
Frequency	0	0	0	0
% of Group	0%	0%	0%	0%

I preferred to use the printed Chemical Abstracts indexes.

	All (N=26)	Faculty (N=7)	Post-doctoral (N=8)	Graduate (N=11)
Frequency	4	1	0	3
% of Group	15.4%	14.3%	0%	27.3%

It was too difficult to do online searching.

	All (N=26)	Faculty (N=7)	Post-doctoral (N=8)	Graduate (N=11)
Frequency	0	0	0	0
% of Group	0%	0%	0%	0%

I did not understand how to do online searching.

	All (N=26)	Faculty (N=7)	Post-doctoral (N=8)	Graduate (N=11)
Frequency	4	0	2	2
% of Group	15.4%	0%	25%	18.2%

I had no need for this kind of research information.

	All (N=26)	Faculty (N=7)	Post-doctoral (N=8)	Graduate (N=11)
Frequency	1	0	0	1
% of Group	3.8%	0%	0%	9.1%

I did not have enough time to do online searching.

	All (N=26)	Faculty (N=7)	Post-doctoral (N=8)	Graduate (N=11)
Frequency	3	1	2	0
% of Group	11.5%	14.3%	25%	0%

I was not aware of the Chemistry Research Information Service.

	All (N=26)	Faculty (N=7)	Post-doctoral (N=8)	Graduate (N=11)
Frequency	0	0	0	0
% of Group	0%	0%	0%	0%

Other.

	All (N=26)	Faculty (N=7)	Post-doctoral (N=8)	Graduate (N=11)
Frequency	5	0	2	3
% of Group	19.2%	0%	25%	27.3%

IV. Evaluation of Document Delivery Service

Thirty-eight researchers personally used the document delivery service. Table 8 categorizes these users by their academic status. The questions which follow Table 8 were answered by these researchers.

Table 8.

Respondents Who Used the Document Delivery Service

Status	No. of Service Users	% of Service Users (N=38)	% of Group
All (N=66)	38	100%	57.6%
Faculty (N=13)	7	18.4%	53.8%
Postdoctoral (N=19)	10	26.3%	52.6%
Graduate (N=34)	21	55.3%	61.8%

I requested document delivery in order to (mark all that apply):

Get information for a class assignment.

	All (N=38)	Faculty (N=7)	Post-doctoral (N=10)	Graduate (N=21)
Frequency	4	2	1	1
% of Group	10.5%	28.6%	10%	4.8%

Provide information to a faculty member.

	All (N=38)	Faculty (N=7)	Post-doctoral (N=10)	Graduate (N=21)
Frequency	9	0	4	5
% of Group	23.7%	0%	40%	23.8%

Provide information to students/fellows.

	All (N=38)	Faculty (N=7)	Post-doctoral (N=10)	Graduate (N=21)
Frequency	11	4	4	3
% of Group	28.9%	57.1%	40%	14.3%

Support my own research activities.

	All (N=38)	Faculty (N=7)	Post-doctoral (N=10)	Graduate (N=21)
Frequency	37	7	9	21
% of Group	97.4%	100%	90%	100%

It is important that the Library offer a document delivery service to support my research activities.

	All (N=38)	Faculty (N=7)	Post-doctoral (N=10)	Graduate (N=21)
Strongly Agree				
Frequency	18	3	3	12
% of Group	47.4%	42.9%	30%	57.1%
Agree				
Frequency	16	3	6	7
% of Group	42.1%	42.9%	60%	33.3%
Undecided				
Frequency	1	0	0	1
% of Group	2.6%	0	0%	4.8%
Disagree				
Frequency	3	1	1	1
% of Group	7.9%	14.3%	10%	4.8%
Strongly Disagree				
Frequency	0	0	0	0
% of Group	0%	0%	0%	0%

I would not be willing to pay a small fee, such as $.10 per page, to have documents delivered to me.

	All (N=38)	Faculty (N=7)	Post-doctoral (N=10)	Graduate (N=21)
Strongly Agree				
Frequency	6	1	1	4
% of Group	15.8%	14.3%	10%	19%
Agree				
Frequency	10	2	2	6
% of Group	26.3%	28.6%	20%	28.6%
Undecided				
Frequency	11	2	4	5
% of Group	28.9%	28.6%	40%	23.8%
Disagree				
Frequency	7	1	2	4
% of Group	18.4%	14.3%	20%	19%
Strongly Disagree				
Frequency	4	1	1	2
% of Group	10.5%	14.3%	10%	9.5%

The document delivery service improved the quality of my research.

	All (N=38)	Faculty (N=7)	Post-doctoral (N=10)	Graduate (N=21)
Strongly Agree				
Frequency	13	3	2	8
% of Group	34.2%	42.9%	20%	38.1%
Agree				
Frequency	17	2	3	12
% of Group	44.7%	28.6%	30%	57.1%
Undecided				
Frequency	4	2	2	0
% of Group	10.5%	28.6%	20%	0%
Disagree				
Frequency	4	0	3	1
% of Group	10.5%	0%	30%	4.8%
Strongly Disagree				
Frequency	0	0	0	0
% of Group	0%	0%	0%	0%

V. Reasons for Not Using the Document Delivery Service

Twenty-eight researchers did not personally use the document delivery service. Table 9 categorizes these users by their academic status. The question which follows Table 9 was answered by these researchers.

Table 9.

Respondents Who Did Not Use Document Delivery Service

Status	No. of Non-Users	% of Non-Users (N=28)	% of Group
All (N=66)	28	100%	42.4%
Faculty (N=13)	6	21.4%	46.2%
Postdoctoral (N=19)	9	32.1%	47.4%
Graduate (N=34)	13	46.4%	38.2%

I did not request that documents be delivered because (mark the single most important reason):

Someone else in Chemistry was getting documents for me.

	All (N=28)	Faculty (N=6)	Post-doctoral (N=9)	Graduate (N=13)
Frequency	4	3	1	0
% of Group	14.3%	50%	11.1%	0%

I preferred to get the documents myself.

	All (N=28)	Faculty (N=6)	Post-doctoral (N=9)	Graduate (N=13)
Frequency	18	2	4	12
% of Group	64.3%	33.3%	44.4%	92.3%

I had no need of any documents.

	All (N=28)	Faculty (N=6)	Post-doctoral (N=9)	Graduate (N=13)
Frequency	1	1	0	0
% of Group	3.6%	16.7%	0%	0%

I was not aware of the Chemistry Research Information Service.

	All (N=28)	Faculty (N=6)	Post-doctoral (N=9)	Graduate (N=13)
Frequency	5	0	4	1
% of Group	17.9%	0%	44.4%	7.7%

Other.

	All (N=28)	Faculty (N=6)	Post-doctoral (N=9)	Graduate (N=13)
Frequency	0	0	0	0
% of Group	0%	0%	0%	0%